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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,875	03/12/2004	Kurtis Chad Kelley	9453.0002-01	2511
22852	7590	07/12/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			YUAN, DAH WEI D	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,875

Applicant(s)

KELLEY ET AL.

Examiner

Dah-Wei D. Yuan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-33,36-41 and 43-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-33,36-41 and 43-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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BATTERY INCLUDING CARBON FOAM CURRENT COLLECTORS

Examiner: Yuan

S.N. 10/798,875

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July 5, 2005

Detailed Action

1. The Applicant's amendment filed on June 17, 2005 was received. Claims 34,42 were cancelled. Claims 1,36 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on March 18, 2005.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 27-33,36-41,43-52 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling the use of an acidic electrolytic solution, such as sulfuric acid, in a lead acid battery, does not reasonably provide enablement for other acidic electrolytes, including but not limited to, LeClanche, zinc chloride and hydrogen fluoride electrolytes. See Barker et al. (US 6,869,547 B2), Column 11, Lines 32-42; Schubert et al. (2003/0165744 A1), Paragraph 45. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 102

5. The claim rejections under 35 U.S.C. 102(e) as anticipated by Amiel et al. (US 6,656,640 B1) on claims 27-29,31,32,34,36,38-40,42 are withdrawn, because the independent claims 27 and 36 have been amended.

6. Claims 27-29,31,32,36,38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (US 5,972,538).

With respect to claims 27,32,36, Saito et al. teach a battery comprising a housing, an electrolytic solution and current collectors. A carbon foam is bonded to vitreous carbon (a chemically active material) with an electroconductive adhesive to prepare a current collector material. Saito further teaches the use of sodium chloride and aluminum chloride (Lewis acid) as the electrolyte in the battery. See Column 4, Lines 21-32; Column 7, Lines 11-22. The disclosure of Saito et al. differs from Applicant's claims in that Saito et al. do not specifically discuss the essential components, such as positive terminal and negative terminal, of a battery. However, one of ordinary skill in the battery art would recognize these components are inherent in the operation and functionality of a battery.

With respect to claims 28,29,31,38-40, Saito et al. do not specifically disclose the porosity, electrical resistivity and density of the carbon foam. However, it is the position of the examiner that such properties are inherent, given that both Saito et al. and the present application utilize similar carbon foam material. A reference which is silent about a claimed invention's

features is inherently anticipatory if the missing feature *is necessarily present in that which is described in the reference*. In re Robertson, 49 USPQ2d 1949 (1999).

Claim Rejections - 35 USC § 103

7. The claim rejections under 35 U.S.C. 103(a) as unpatentable over Amiel et al. and Ludwig on claims 30,46,47,52 are withdrawn, because the independent claims 27,36 have been amended.

8. The claim rejections under 35 U.S.C. 103(a) as unpatentable over Amiel et al. and Nagle et al. on claims 48-51 are withdrawn, because the independent claims 27,36 have been amended.

9. The claim rejections under 35 U.S.C. 103(a) as unpatentable over Amiel et al. and James et al. on claims Nagle et al. on claims 33,37,43-45 are withdrawn, because the independent claims 27,36 have been amended.

10. Claims 30,46,47,52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 5,972,538) as applied to claims 27-29,31,32,36,38-40 above, and further in view of Ludwig (US 4,084,041).

Saito et al. disclose a carbon foam current collector as described above in Paragraph 6. However, Saito et al. do not disclose that current collector further contains graphite foam. Ludwig et al. teach a battery, wherein the carbon based porous conductive material consisting of

graphite, felt, graphite foam and carbon foam. See Column 9, Lines 22-28. However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two materials, carbon foam and graphite foam in the battery of Saito. It is prima facie obvious to combine two compositions, each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. In re Kerkhoven, 205 USPQ 1069, 1072. In addition, it would have been within the skill of the ordinary artisan to adjust the respective amount of the carbon foam and graphite foam in the current collector to yield an electrical resistivity value of between about 100 $\mu\Omega$ -cm and about 2500 $\mu\Omega$ -cm. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art.* In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

11. Claims 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 5,972,538) as applied to claims 27-29,31,32,36,38-40 above, and further in view of Nagle et al. (US 6,670,039 B1).

Saito et al. disclose a carbon foam current collector as described above in Paragraph 6. However, Saito et al. do not disclose that current collector further contains carbonized wood and graphitized wood. Nagel et al. teach the carbonized wood produced may be used in applications where carbon foams are currently being employed. Specifically, the carbonized wood allows for higher stiffness than that found in carbon foams. The presence of graphitic phase (graphitized wood) in the carbonized wood is also documented in the Nagle. See Column 32, Line 50 to

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Column 33, Line 3; Column 34, Lines 29-38. Therefore, it would have been obvious to one of ordinary skill in the art to add carbonized wood to the current collector of Amiel et al., because Nagel teach the carbonized wood (along with graphitized wood) has better stiffness than that of carbon foam.

12. Claims 33,37,43-45are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 5,972,538) as applied to claims 27-29,31,32,36,38-40 above, and further in view of James et al. (US 5,766,789).

Saito et al. disclose a carbon foam current collector as described above in Paragraph 6. However, Saito et al. do not disclose that current collector can bed used in a lead-acid battery. James et al. teach a lead-acid battery, wherein current collector is filled with an active paste that contains sulfated lead oxide as active material. In one embodiment, the current collector comprises titanium dioxide having Sn-Pb alloy, i.e., a lead current collector. The lead-acid battery remains favored for used such as starting internal combustion engines, electric vehicle motive power, as well as portable and emergency power for industrial and military applications. See Column 1, Lines 60 to Column 2, Line 13; Column 6, Lines 40-51; Claims 35-38. Therefore, it would have been obvious to one of ordinary skill in the art to use of the carbon foam current collector of Saito on the lead-acid battery of James, Because James teaches the lead-acid battery as a favored power sources in various applications.

Double Patenting

13. The claim rejections under the judicially created doctrine of obviousness-type double patenting over claims 1-12 of copending Application No. 10/326,257 are withdrawn, because Applicant's arguments are persuasive.

14. The claim rejections under the judicially created doctrine of obviousness-type double patenting over claims 1-8 of copending Application No. 10/183,471 are withdrawn, because the case has been abandoned.

Response to Arguments

15. Applicant's arguments filed on June 17, 2005 have been fully considered but they are not persuasive.

Applicant's principle arguments are

Saito et al. do not teach the use of an acidic electrolytic solution.

In response to Applicant's arguments, please consider the following comments.

Saito et al. teach a molten salt battery, wherein the electrolyte comprises an $\text{AlCl}_3/\text{NaCl}$ mixture or a KCl/AlCl_3 mixture. See Column 4, Lines 21-32. It is well known in the battery art the aforementioned electrolyte is commonly recognized as Lewis acid as evidenced by Coetzer (US 4,975,343, Column 2, Line 29 to Column 3, Line 60) and Wright (US 4,722,875, Column 9, Lines 1-11). Therefore, the disclosure of Saito meets the recitation as claimed.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

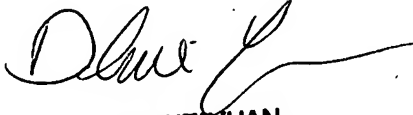
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
July 5, 2005



DAH-WEIYUAN
PRIMARY EXAMINER